

# CONTRIBUTION TO THE BRYOLOGICAL KNOWLEDGE OF MALAYSIA

## II. KEDAH PEAK

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Kedah Peak (Gunong Jerai, 1,350 m), an isolated hill above the rice fields and near the sea, is at about forty kilometers South of Alor Star, the chief town of the Kedah State.

One may think that the massive rocks are granitic. Dr. B.C. Stone of the University of Kuala Lumpur notes the resemblance between this mountain and Mt. Bokor in Cambodia on the border of Thailand Gulf.

This two stations are situated just above the sea shore and received directly the South-East moonson. Yet some difference may be noted: the Bohor is a wide plateau of about 30 km long, between Kampot and Sré Ambel and it is probable that its vegetal formations occupy all the maritime front of the Cardamones Range till the Thai border. On the other hand, Kedah Peak remains a regularly sloping massive of only 10 km in length and without any connection with other hill ranges; its slopes come steeply down to the sea and the plain.

The two stations have a real dry season but the Bokor is probably wetter than the Kedah Peak because its annual rainfall is 3-4,000 mm, but only 2,000 mm/year in the Kedah Plain.

Considering the orientation of the massive, the southern and the northern faces are drier, the other ones wetter.

There are no real different levels of vegetation along the slopes. The lowland forest remains poorly known botanically, and from the sea-side, the first formation is the mangrove forest.

Some species of palms are found in the understorey of the dense forest. The most characteristic formations of the massive are seen on the western face (deciduous forest) and on the top of the hill (shrubby forest).

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Deciduous forest formation remains a little mysterious and it seems probable that the forest should be really secondary, in fact I prefer an edaphic origin to this formation growing on eroded soils with big boulders.

Coarse herbaceous species cover the ground (grasses, sedges, ferns) similar to those occurring in Bokor at Popokveal. The following bryophytes form cushions on the soil: *Sphagnum junghuhianum*, *Leucobryum javense*, and *Mastigophora diclados*.

On trees one can recognize following orchids: *Sarcopodium* spp., *Bulbophyllum* spp., *Eria* spp., and *Acriopsis indica*. In addition there are a good lot of epiphytic Asclepiadaceae (*Dischidia nummularia*, *D. pseudo-bengalensis*, and *D. rafflesiana*) and also *Hydnophytum* sp., a myrmecophilous plant.

The forest on the top is more a crest forest than a real shrubby formation as that known from Bokor. There are no big trees above the canopy of the formation and the forest appears less impenetrable than in Bokor. In the crest forest, the epiphytes and the epiphylls remain in the lower stratum. The bryophytic carpet (mosses for the greater part) covers the soil and the base of the trunks. Epiphyllous liverworts do not get beyond one meter from the ground and it is the same for the orchids, such as *Eria velutina*, *Podochilus* sp., *Dendrobium revolutum* and some species of *Bulbophyllum*.

#### MOSSES

*Sphagnum junghuhnianum* Doz. & Molk.

On ground in sunny locations in forest, 1,000 m, 13/IV/72, No. 5990, 6026, 6027 6028; 14/IV/72, No. 6047, 6089.

Khasia, Thailand, Java, Malaya.

*Fissidens ceylonensis* Doz. & Molk.

On banks at the base of the mountain, 50 m, 13/IV/72, No. 6025.

India and South-East Asia.

*Campylopus richardii* Brid.

On rocks in shrubby forest, 1,100 m, 14/IV/71, No. 5710.

From Ceylon to New Caledonia.

*Dicranoloma blumei* (Nees) Par.

Corticolous in forest, 1,000 m, 14/IV/72, No. 6084.

Southern Indochina, Thailand, Malesia, New Guinea, New Hebrides, New Caledonia.

*Dicranoloma braunii* (C. Muell.) Par.

On ground in shrubby forest, 1,100 m, 16/IV/71, No. 5692, 5693.

From Indochina to New Caledonia.

*Leucoloma molle* (C. Muell.) Mitt.

On twigs in shrubby forest, 1,000 m, 16/IV/71, No. 5691; 14/IV/72, No. 6074.

From Indochina to New Guinea and Japan.

*Leucobryum bowringii* Mitt.

On logs in forest, 1,000 m, 14/IV/72, No. 6095.

Ceylon, Indochina, Malesia, Japan, Formosa, China.

*Leucobryum candidum* Hook. f. & Tayl.

Decaying wood in forest, 650 m, 16/IV/71; in evergreen forest, 900 m, 13/IV/72, No. 5988.

From Himalaya to New Zealand.

*Leucobryum javense* Brid.

On ground in shrubby forest, 1,100 m, 16/IV/71; evergreen forest 900 m, 13/IV/72, No. 5985.

India, Ceylon, Indochina, Malesia, Japan, New Guinea.

*Syrrhopodon borneensis* (Hpe.) Jaeg.

On trunk in deciduous forest, 900 m, 13/IV/72, No. 6048

Malaya, Sumatra, Java, Borneo, Indochina.

*Syrrhopodon croceus* Mitt.

On ground along the border of forest, 900 m, 13/IV/72, No. 5993, 6001.

From Ceylon to New Caledonia.

*Syrrhopodon spiculosus* Hook. & Grev.

Decaying wood in forest, 900 m, 13/IV/72, No. 5999.

Vietnam, Cambodia, Malaya, Borneo, Philippines, Sumatra.

*Rhizogonium spiniforme* (Hedw.) Bruch.

Decaying wood in forest, 900 m, 13/IV/72, No. 5995, 6110.

Pantropical.



*Hypnodendron dendroides* (Brid.) Touw

On ground in shrubby forest, c. 1,000 m. 16/IV/71; 14/IV/72, No. 6085, 6087.

Ceylon, Malesia, New Guinea, Solomon Islands, New Hebrides, New Caledonia, Fiji.

*Groutiella goniorrhyncha* (Doz. & Molk.) Wijk & Marg.

Evergreen forest, 900 m, 13/IV/72, No. 5889.

From Himalaya to Malesia.

*Desmotheca apiculata* (Doz. & Molk.) Lindb.

On trunks along the border of forest, 1,000 m, 13/IV/72, No. 6002.

Burma, South Vietnam, Thailand, Malesia.

*Aerobryopsis longissima* (Doz. & Molk.) Fleisch.

In evergreen forest on twigs, 1,000 m, 16/IV/71, No. 5696; idem, 13/IV/72, No. 6987.

From India to New Caledonia.

*Aerobryidium filamentosum* (Hook.) Fleisch.

In evergreen forest on twigs, 900 m, 13/IV/72, No. 5986,

India, Indochina, Southern China, Western Malaysia.

*Clastobryella asperrima* Dix.

Twigs in shrubby forest, 1,000 m, 16/IV/72, No. 5683, 5693, 5705; idem, 14/IV/72, No. 6082.

Malaysia, Java, New Caledonia, Vietnam.

*Clastobryella cuculligera* (Lac.) Fleisch.

On twigs in forest, near 1,000 m, 14/IV/72, No. 6059.

From Ceylon to New Caledonia.

*Clastobryella epiphylla* (Ren. & Card.) Fleisch.

On twigs in shrubby forest, 1,100 m, 16/IV/72, No. 5684.

From South Indochina to New Caledonia.

*Clastobryella merrillii* (Broth.) Fleisch.

Same location, 1,100 m, 16/IV/71, No. 5684

Pantropical.

*Clastobryum caudatum* (Bosch & Lac.) Fleisch.

Same location, 1,100 m, 16/IV/71, No. 5723.

Vietnam, Java, New Caledonia.

*Trismegistia brauniana* (Bosch & Lac.) Fleisch.

On wood in shrubby forest, 1,100 m, 16/IV/71, No. 5698; idem, 14/IV/72, No. 6083, 6086, 6102.

Java, Sumatra, Malaya.



*Trismegistia rigida* (Mitt.) Broth.

On ground in shrubby forest, 1,100 m, 16/IV/71, No. 5696, 5704.  
Indochina, Malesia, New Guinea, New Caledonia.

*Sematophyllum microcladiellum* Fleisch.

On rock, 1,100 m, 16/IV/71, No. 5713.  
From Malaya to New Hebrides.

*Acroporium albidissimum* Dix.

On trunk in shrubby forest, 1,100 m, 16/IV/71, No. 5702; decaying wood in forest,  
1,000 m, 14/IV/72, No. 6092,  
Malaya, Thailand, Borneo.

*Acroporium cf. dicranoides* Fleisch.

Decaying wood in evergreen forest, c. 1,000 m, 14/IV/72, No. 6094; deciduous  
forest on trunks, 900 m, 13/IV/72, No. 6036.  
Sumatra, Borneo.  
Curious species with narrow, papillous and twisted leaves.

*Acroporium diminutum* (Brid.) Fleisch.

Decaying wood, c. 1,000 m, 16/IV/71, No. 5704; idem, 14/IV/72, No. 6067; on  
twigs, 16/IV/71, No. 5715; idem, 14/IV/72, No. 6039, 6091, 6097.  
South Indochina, Malesia.

*Acroporium falcifolium* Fleisch.

On twigs in shrubby forest, 1,000 m, 16/IV/71, No. 5683; idem, 14/IV/72, No.  
6101.  
Already known from Kedah Peak, Malaya, Malesia.

*Acroporium hamulatum* Fleisch.

Twigs in shrubby forest, 1,100 m, 16/IV/71, No. 5723; idem, decaying wood, 900 m,  
13/IV/72, No. 5994, 6009,  
Intermediate form between, *A. hamulatum* and *A. hermaphroditum*.  
South Indochina, Malesia, New Hebrides.

*Acroporium hermaphroditum* (C. Muell.) Fleisch.

On the ground deciduous forest, 900 m, 13/IV/72, No. 6033.  
South Indochina, Malesia, New Guinea, New Hebrides, New Caledonia.

*Acroporium lamprophyllum* Mitt.

On twigs in shrubby forest, 1,100 m, 16/IV/71 No. 5720.  
Indochina, Malesia, New Guinea, Oceania.

*Acroporium leucophyllum* Dix.

On twigs in shrubby forest, 1,100 m, 16/IV/71, No. 5684.  
Malaya.

*Acroporium longicuspis* Dix.

Same location, 1,000 m, 16/IV/71, No. 5705; idem, 14/IV/72, No. 6054, 6060, 6061, 6062, 6063, 6064, 6065, 6066, 6068, 6070, 6072, 6080, 6081.  
Malaya, Borneo.

*Acroporium oxyporum* (Doz. & Molk.) Fleisch.

Corticolous in deciduous forest, 900 m, 13/IV/72, No. 6051.  
Ceylon, Vietnam, Formosa, Malesia.

*Acroporium ridleyi* Dix.

Decaying wood, 1,000 m, 14/IV/72, No. 6090.  
Malaya.

*Acroporium secundum* (Reinw. & Hornsch.) Fleisch.

On ground in shrubby forest, 1,000 m, 16/IV/71, No. 5693, 5697, 5700, 5701, 5708; idem, 13/IV/72, No. 6031, 6033, 6037; 14/IV/72, No. 6098.  
Malaya.

*Acroporium secundum* (Reinw. & Hornsch.) Fleisch. var. *angustifolium* Fleisch.

Corticolous in shrubby forest, 1,100 m, 16/IV/71, No. 5699.  
Java, Malaya.

*Acroporium sigmatodontium* (C. Muell.) Fleisch.

Decaying wood in evergreen forest, 1,000 m, 14/IV/72, No. 6101.  
Ceylon, South Indochina, Malesia, Entrecasteaux Islands, New Caledonia, New Guinea, Tahiti.

*Acroporium stramineum* (Doz. & Molk.) Fleisch.

On twigs in shrubby forest, 14/IV/72, No. 6070, 6075, 6079, 6088, 6093; idem, in deciduous forest, 13/IV/72, No. 6053, 6060.  
South Indochina, Malesia, New Guinea, New Caledonia.

*Acroporium cf. vincensianum* Thér.

Decaying wood in forest, 900 m, 13/IV/72, No. 6032, 6038.  
Vietnam, Cambodia, Malaya.

*Trichosteleum boschii* (Doz. & Molk.) Jaeg.

Decaying wood in forest, 13/IV/72, No. 5997; idem, 14/IV/72, 1,000 m, No. 5997; wood on banks, 650 m, 16/IV/71, No. 5712.  
India, Indochina, Malesia, Japan, New Guinea, Fiji.



*Trichosteleum procerum* Dix. var. *laevifolium* Dix.

Decaying wood in deciduous forest.

By the habit of the plant, the form and the ornamentation of the leaves, the long seta (4 cm), this plant may be identical to the Bornean taxon.

*Acanthorrhynchium papillatum* (Harv.) Fleisch.

Base of trunk in evergreen forest, 900 m, 13/IV/72, no. 5998.

Nepal. South Indochina, Malesia, New Guinea, Solomon Islands, Fiji.

*Acanthorrhynchium papillatum* (Harv.) Fleisch. form. *penangense* nov. form.

*Differt a specie typica, cellulis folii longioribus, cellulis alaribus luteis, seta breviori propagulisque.*

The typical species has already been recorded by I. Theriot in his study of Deschamps's collections from Penang Hill, which I found again for the second time. The character of this species is very constant in the Far East and found to be in sympatry with the forma *penangense*; it is convincing that, on the genetic level, they are belonging to two different species.

Endemic.

*Ectropothecium buitenzorgii* (Bel.) Jaeg.

Decaying wood in evergreen forest, 1,000 m, 13/IV/72, No. 5992, 6000; idem, 14/IV/72, No. 6033, 6096.

From Ceylon to Malesia.

*Ectropothecium chamissonis* (Hornsch.) Jaeg.

Twigs in evergreen forest, 1,000 m, 14/IV/72, No. 6079; on banks, 1,000 m, 13/IV/72, No. 6035.

Thailand, Malaya, Banka, Moluccas.

*Ectropothecium ichnotocladum* (C. Muell.) Jaeg.

Decaying wood, in shrubby forest, 1,100 m, 16/IV/72, No. 5706.

Himalaya, South Indochina, Malesia, New Guinea.

*Ectropothecium intorquatum* (Doz. & Molk.) Jaeg.

Trunks along the border of evergreen forest, 1,000 m, 13/IV/72, No. 5994.

Java, Sumatra, Moluccas, Sulawesi.

*Ctenidium lychnites* Mitt.

Decaying wood in evergreen forest, 13/IV/72, No. 6001.

Khasia Hills, Nilghiri, Ceylon, Philippines.

## LIVER WORTS

## A. CORTICOLOUS &amp; TERRESTRIAL

*Jamesioniella* sp.

On banks, 900 m, 13/IV/72, No. 6013.

*Eucalyx* sp.

On banks in deciduous forest, 900 m, 13/IV/72, No. 6046.

*Bazzania malaccensis* (St.) P. Tix.

Corticolous in shrubby forest, 1,000 m, 16/IV/71, No. 5686.  
Malaya.

*Bazzania spiralis* (Reinw., Blume & Nees) W. Meyer

Same location, 1,000 m, 16/IV/71, No. 5687, 5688.

South Indochina, Malesia, New Hebrides.

*Acromastigum bidenticulatum* Ev.

Corticolous in evergreen forest, 1,100 m, 16/IV/71, No. 5617.  
Malesia.

*Acromastigum echinatum* (Gotts.) Ev.

On decaying wood in forest, 1,000 m, 14/IV/72, No. 6017, 6037.  
Banka, Borneo, Malaya.

*Acromastigum laevigatum* (Mitt.) Ev.

Corticolous in forest, 900 m, 13/IV/72, No. 6011, 6012.  
Borneo.

*Lepidozia* sp.

On decaying wood in shrubby forest, 1,100 m, 16/IV/72, No. 5720.

*Schistochila* cf. *linearifolia* Jack. & St.

On trunk in forest, 1,000 m, 14/IV/72, No. 6114.  
Samoa.

*Herberta* cf. *herpocladoides* Sc. & Mill.

Twigs in shrubby forest, 1,100 m, 16/IV/71, No. 5691.  
Hawaii.

*Herberta* cf. *pusilla* (St.) Hattori.

On decaying wood in forest, 1,000 m, 14/IV/72, No. 6117.  
Korea.

*Chiloscyphus ceylanicus* (St.) nom. ms.

On decaying wood in forest, 1,100 m, 14/IV/72, No. 6114.  
Ceylon.



*Chiloscyphus decurrens* Nees

Twigs in shrubby forest, 1,100 m, 16/IV/71, No. 5684.  
Java.

*Chiloscyphus flaccidens* St.

Twigs in shrubby forest, 1,100 m, 16/IV/71, No. 5716; idem, 14/IV/72, No. 6076,  
6113.  
Himalaya, Sikkim.

*Mastigophora diclados* (Brid.) Nees

Corticolous in shrubby forest, 1,100 m, No. 5719.  
Pantropical.

*Trichocolea pluma* Mont.

Same location, 1,100 m, 16/IV/71, No. 5718.  
Pantropical.

*Pleurozia gigantea* (Weber) Lindb.

On twigs in shrubby forest, 1,000 m, very common, 16/IV/71, No. 5681; 5722;  
idem, 14/IV/72, No. 6115, 6119.  
St. Helena, Tanzania, Mascarene, Sumatra, Java, Annam, Luzon, Ambon, New  
Caledonia.

*Radula formosa* (Meiss.) Nees

On trunks in forest, 14/IV/72, No. 6099, 6053.  
South-East Asia and Oceania.

*Radula miqueliana* Tayl.

Same location, 900 m, 13/IV/72, No. 6021.  
From Sumatra to New Caledonia.

*Cheilolejeunea verrucosa* St.

On twigs in shrubby forest, 1,000 m, 14/IV/72, No. 6067.  
Sumatra.

*Colura cf. superba* (Mont.) S.J.A.

Same location, 14/IV/72, No. 6122.  
South-East Asia.

*Pycnolejeunea arietina* P. Tix.

Hanging on twigs in shrubby forest, 900 m, 14/IV/72, No. 6069.  
Endemic.

*Xenolejeunea meyeniana* (St.) Schust. & Kachr.

On barks in forest, 900 m, 13/IV/72, No. 6014.  
South-East Asia.

*Thysananthus spathulistipus* Rein., Blume & Nees

Twigs in forest, 1,000 m, 13/IV/72, No. 6019, 6023, 6024; idem, 14/IV/72, No. 6063.

From Madagascar to New Hebrides.

*Drepanolejeunea tenera* Goeb.

Corticolous, 1,100 m, 16/IV/71, No. 5617.

Sumatra, Java, Borneo, Sulawesi, Moluccas, Vietnam.

*Frullania apiculata* Auct.

On twigs in shrubby forest, 13/IV/72, No. 6023; idem, 14/IV/72, No. 6060, 6072, 6077, 6120.

From Ceylon to New Guinea.

*Frullania integristipula* (Nees) Nees

Corticolous in shrubby forest, 1,100 m, 16/IV/72, No. 5621.

Known from the locality previously collected by R.E. Holttum, Malesia.

*Frullania picta* St.

On barks in forest, 900 m, 13/IV/72, No. 6022.

Burma, Penang, Ambon.

*Frullania pullei* Verd.

Corticolous in shrubby forest, 1,000 m, 14/IV/62, No. 6056.

New Guinea.

*Frullania ternatensis* Gottsche

Twigs in shrubby forest, 1,000 m, 16/IV/71, No. 5684, 5689; on barks in deciduous forest, 900 m, 13/IV/72, No. 6057.

Indochina, Malesia.

## B. EPIPHYLLOUS

*Radula formosa* (Meissner) Nees

Epiphyllous in shrubby forest, 1,000 m, 16/IV/71, No. 5669.

Pantropical.

*Cheilolejeunea verrucosa* St.

Same location, 16/IV/71, No. 5675; idem, 14/IV/72. No. 5983.

Sumatra.



*Cololejeunea falcatoides* Bx.

In evergreen forest, 900 m, 13/IV/72, No. 5968, 5969.

Sumatra, Java, Ceylon, Borneo, Malaya, Cambodia, Thailand, Sulawesi, Philippines, New Caledonia.

*Cololejeunea floccosa* (Lehm. & Lindb.) St.

Same location, 800 m, 13/IV/72, No. 5965, 5967, 5971.

Indochina, China, Japan, Malesia.

*Cololejeunea goebelii* Schiffn.

Same location, 800 m, 13/IV/72, No. 5967.

Japan, coastal China, Indochina, Malaya, Java.

*Cololejeunea oshimensis* (Hor.) Bx.

In shrubby forest, 1,000 m, 16/IV/71, No. 5669, 5673, 5674; idem, 14/IV/72, No. 5975, 5977, 5979; in evergreen forest, 800 m, 13/IV/72, No. 5965, 5966, 5969, 5970.

China, Japan, Indochina, Malaya, Java, Sulawesi, New Caledonia.

*Cololejeunea peculiaris* Herz.

In shrubby forest, 16/IV/71, No. 5669, 5673; idem, 14/IV/72, No. 5983.

Java, Malaya.

*Cololejeunea stephanii* Bx.

In shrubby forest, 1,000 m, 14/IV/72, No. 5973, 5974, 5975.

Malaya, Java.

*Cololejeunea tenella* (St.) Bx.

In shrubby forest, 1,000 m, 16/IV/71, No. 5667, 5669.

Java, Sumatra.

*Colura* sp.

In shrubby forest, 16/IV/71, No. 5669, 5672, 5673, 5675, 5676, 5677, 5679.

*Colura* sp.

In shrubby forest, 1,000 m, 16/IV/72, No. 5667, 5669, 5671, 5672.

*Drepanolejeunea micholitzii* Herz.

In shrubby forest, 1,000 m, 16/IV/71, No. 5668; idem, 14/IV/72, No. 5972, 5977.

From Chittagong to New Caledonia.

*Drepanolejeunea malayana* Groll. nom. sol.

In evergreen forest, 13/IV/72, No. 5967, 5968, 5971; in shrubby forest, 1,000 m, 14/IV/72, No. 5972, 5983.

Endemic.

*Drepanolejeunea tenera* Goeb.

In shrubby forest, 1,000 m, 16/IV/71, No. 5677.

Vietnam, Sumatra, Java, Borneo, Sulawesi, Moluccas.

*Drepanolejeunea thwaitesiana* Mitt.

In shrubby forest, 1,000 m, 14/IV/72, No. 5973.

Indochina, Malesia.

*Lejeunea* sp.

In evergreen forest, 800 m, 13/IV/72, No. 5970: in shrubby forest, 1,000 m, 14/IV/72, No. 5984.

*Leptolejeunea epiphylla* (Mitt.) St.

In evergreen forest, 800 m, 13/IV/72, No. 5969.

From Ceylon to New Caledonia and Tahiti.

*Leptolejeunea foliicola* St.

In shrubby forest, 1,000 m, 16/IV/71, No. 5669.

Vietnam, Sumatra, Java, Borneo, Moluccas.

*Leptolejeunea picta* St.

In evergreen forest, 800 m, 13/IV/72, No. 5965, 5966, 5967, 5968, 5969, 5970, 5971.

Sumatra, Cambodia, Borneo.

*Leptolejeunea radiata* (Mitt.) St.

In evergreen forest, 800 m, 13/IV/72, No. 5972, 5973; idem, in shrubby forest, No. 5974.

Indochina, Java, Formosa, Sulawesi.

*Leptolejeunea vitrea* (Nees) St.

In evergreen forest, 800 m, 13/IV/72, No. 5967.

South Indochina, Malesia.

*Lopholejeunea herzogiana* St.

In shrubby forest, 1,000 m, 16/IV/71, No. 5669.

Philippines.

*Microlejeunea cucullata* (Nees) St.

In shrubby forest, 1,000 m, 16/IV/71, No. 5677.

South-East Asia and Oceania.

*Osmolejeunea* sp.

Epiphyllous in shrubby forest, 1,000 m, 14/IV/72, No. 5974.

*Thysananthus spathulistipus* Reinw. Blume Nees

In shrubby forest, 1,000 m, 14/IV/72, No. 5979.

From Madagascar to New Hebrides.



*Tuyamaella molishii* (Schiffn.) Hattori

In evergreen forest, 800 m, 13/IV/72, No. 5965; in shrubby forest, 14/IV/72, No. 5978, 5981.

Japan, South Vietnam, Malaya.

*Xenolejeunea ceylanica* (Gottsche) Kachroo & Schuster.

In shrubby forest, 1,000 m, 14/IV/72, No. 5976, 5983.

Ceylon, Indochina, Malesia.

*Xenolejeunea falsinervis* (Sde-Lac.) St.

In evergreen forest, 800 m, 13/IV/72, No. 5967.

Vietnam, Cambodia, Penang, Java.

*Xenolejeunea longiloba* (St.) Kach. & Schust.

In shrubby forest, 1,000 m, 16/IV/71, No. 5667, 5669, 5670, 5678.

South-East Asia.

*Frullania apiculata* Auct.

In shrubby forest, 1,000 m, 16/IV/71, No. 5576; idem, 14/IV/72, No. 5973, 5977, 5978.

From Ceylon to Hawaii.

*Frullania notarisii* St.

In shrubby forest, 1,000 m, 16/IV/71, No. 5675.

Borneo.

*Neohattoria perversa* (St.) Schuster

Epiphyllous in shrubby forest, 1,000 m, 16/IV/71, No. 5675; idem, 14/IV/72, No. 5977, 5983.

Philippines.

## CONCLUSION

The community floristic coefficients between Kedah Peak and eleven regions in Tropical Asia, Malesia, Melanesia and Pacific islands are established basing on the mosses and liverworts as enumerated in this list. The value of C.F.C. may be proportional to the distance between Malaya and the region considered. This is more evident in mosses than liverworts; but the knowledge of the latter is poorer than of that of mosses. It can be remarked that New Caledonia and Ceylon has the same C.F.C. For a bryological point of view, the tropical Asian-Oceanian world is continuous from the beginning of wet regions (Ceylon) to the end of the warm ones (New Caledonia, Nouméa, average temperature, 20°C). It seems probably that, the regional divisions based on the bryological elements, are closer to reality than that based on the phanerogamic plants.



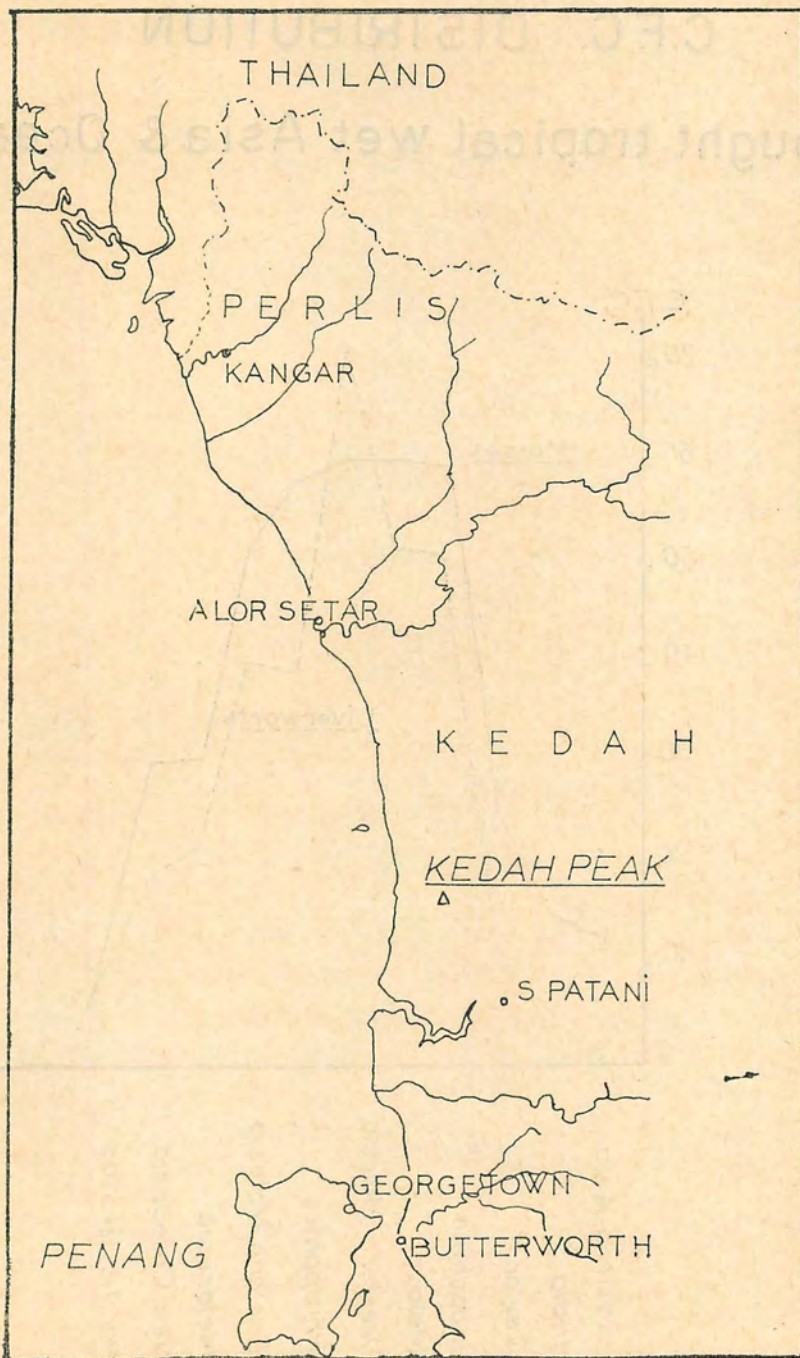
## COMMUNITY FLORISTIC COEFFICIENTS FOR MOSSES AND LIVERWORTS

Regions	Mosses		Liverworts
	Kedah Peah	Fraser's Hill	Kedah Peak
Eastern Asia (Japan, China, Formosa)	14	10	13
India (Dekkan+Himalaya)	20	20	5
Ceylon	26	30	11
Indochina <i>sensu lato</i>	60	70	53
Malaya	61	68	53
Western Malesia (Java, Sumatra, Borneo)	61	77	74
Philippines	58	63	38
Eastern Malesia (Celebes, Moluccas, etc.)	54	56	41
Melanesia (New Guinea, New Hebrides)	31	20	23
New Caledonia	30	10	18
Pacific Islands	16	14	11

## LITERATURE

1926. DIXON, H.N.—A list of Mosses of the Malay Peninsula.  
Gard. Bull. Str. Settl. **4**: 1-46.
1971. TIXIER, P.—A Contribution to the Bryological Knowledge of Fraser's Hill Station (Malaysia).  
Gard. Bull. Singapore, **25** (3): 335-353.
1972. TIXIER, P.—Mount Maquilang Bryoflora (Luzon).  
Gard. Bull. Singapore, **26**: 137-153.
1972. TIXIER, P.—Contribution à l'étude des Lejeunéacées du Pacifique.  
Bull. Soc. Hist. Nat. Afr. Nord, **58** (3-4): 9-12.

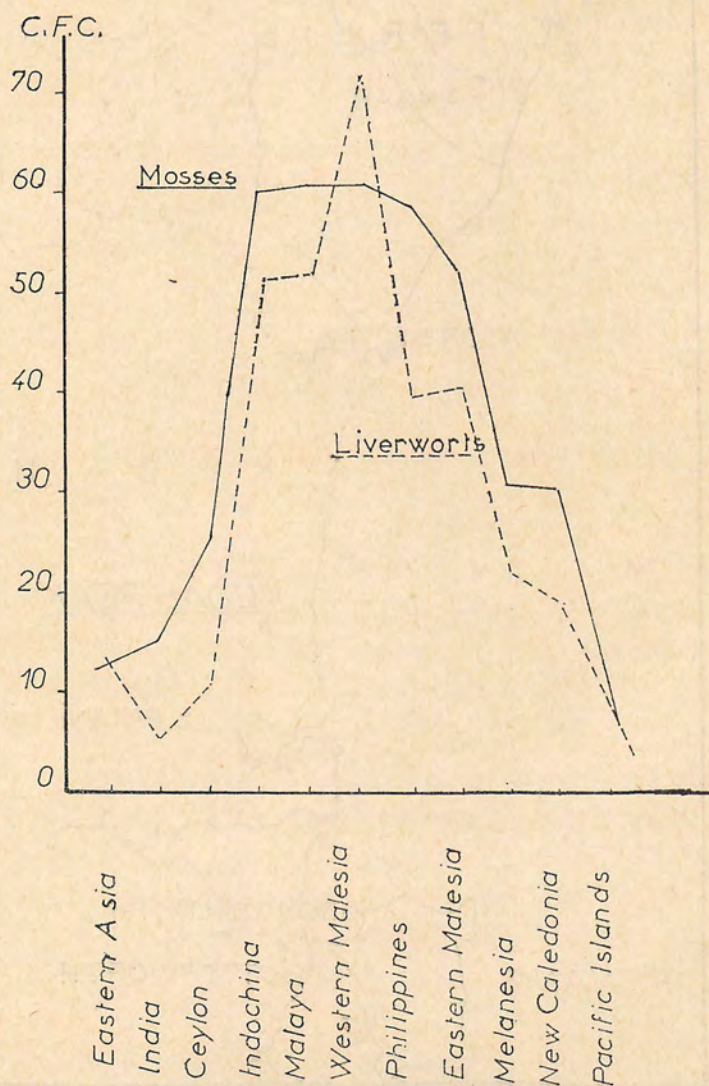




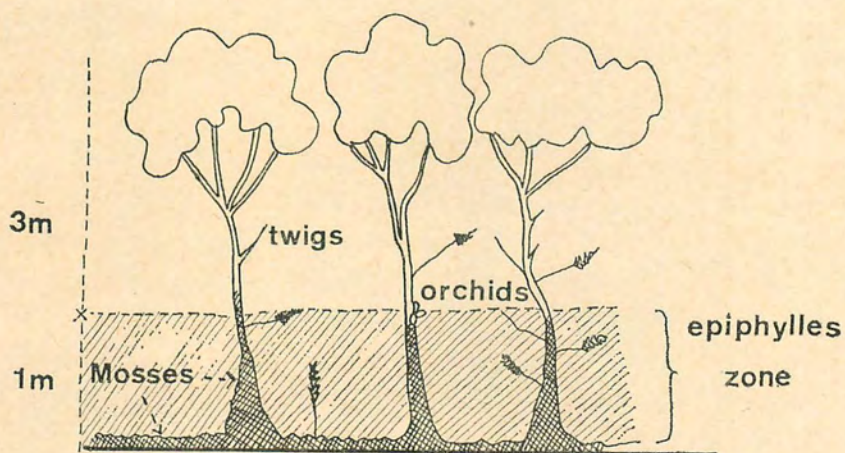
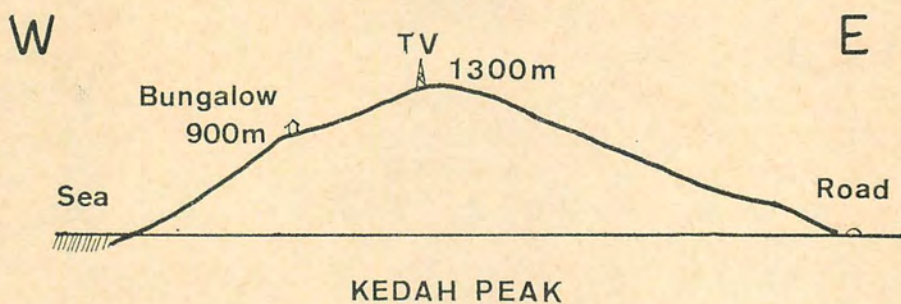
Map of northern Malaysia showing the area under study.

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